REMARKS

Claims 1-7 and 16-32 are pending in this application. Claims 8-15 have been canceled. No new claims are presented in this response.

The Examiner has rejected claims 8 & 9 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2002/0089017 to *Lai, et al.* (hereafter "Lai")

The Examiner has rejected claims 1-15 and 23-27 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,309,940 to Lee (hereafter "Lee") in view of Lai.

The Examiner has rejected claims 16-22 and 28-32 under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Lai, and in further view of U.S. Patent No. 6,756,834 to Tong, et al. (hereafter "Tong").

For at least the reasons set forth below, withdrawal of all outstanding rejections is respectfully requested.

Prior Art Rejections

Section 102(e) rejections:

The Examiner has rejected claims 8 & 9 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2002/0089017 to *Lai, et al.* (hereafter "Lai")

Applicants respectfully traverse the Examiner's rejections.

Applicants have canceled claims 8-15. Thus, the rejections of claims 8 and 9 have been rendered moot.

Section 103(a) rejections:

The Examiner has rejected claims 1-15 and 23-27 under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Lai. The Examiner further rejected claims 16-22 and 28-32

under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Lai, and in further view of Tong.

Applicants respectfully traverse all of the above rejections.

Applicants respectfully submit that the Examiner has suggested an improper hindsight combination of the cited references that – even if one of ordinary skill in the art could find motivation to make such highly speculative and selective modifications – would not successfully render all of the required elements of the pending claims.

In light of the following remarks, addressing each claim sequentially, Applicants respectfully request reconsideration and allowance of all claims pending in this application.

Claim 1:

The Examiner suggests that Lee discloses an integrated circuit comprising an silicon controlled rectifier (SCR); a first transistor of a first type (P-channel FET) integrally formed with the SCR including a first gate; a second transistor of a second type (N-channel FET) integrally formed with the SCR including a second gate; and a control circuit (Vin) which provides a first and second voltage to the first and second gates.

Applicants respectfully traverse the Examiner's characterization of the teachings of Lee.

The Examiner admits that Lee does not teach a control circuit providing "a first holding voltage to the SCR to keep the SCR from latching up, and in response to a second voltage applied to the first and second gates providing a second holding voltage to the SCR to keep the SCR in latch up state." The Examiner later admits, in reference to claim 16, that Lee "does not teach a control circuit providing a first holding voltage through the p-type and n-type transistors

to the SCR to keep the SCR from latching up, and providing a second holding voltage through the p-type and n-type transistors to the SCRs to keep the SCRs in the latch-up state."

Applicants agree.

Applicants further respectfully point out Lee appears to be directed to an invention that is intended to **AVOID** latch-up. (Col. 2, lines 44-46). Thus one of ordinary skill, upon finding Lee, would be taught away from keeping a semiconductor device in latch-up. **Lee's invention is, in fact, entitled "Latch-Up Resistant CMOS Structure."**

The Examiner then suggests that Lai discloses an SCR device wherein a control circuit is coupled to first and second gates of N and P type FETs and that by driving the gates, the control circuit provides a first holding voltage to the SCR to keep the SCR from latching up, and in response to a second voltage applied to the first and second gates providing a second holding voltage to the SCR to keep the SCR in the latch up state.

Applicants respectfully traverse the Examiner's characterization of the teachings of Lai.

The Examiner then goes on to suggest that it would have been obvious to one of ordinary skill "to combine the teachings of Lee with Lai, et al., by coupling the control circuit (244&250) taught by Lai, et al., at node A, to the control signal (Vin) of Lee, for the purpose of avoiding latch-up while the SCR operates at normal condition, but allows for easy triggering of the device in an ESD event."

Applicants respectfully disagree with this highly speculative and highly selective combination of the Lee and Lai references.

Claim 1 requires an integrated circuit for electrostatic discharge (ESD) protection comprising: a silicon-controlled rectifier (SCR) that includes a first transistor of a first type

integrally formed with the SCR including a first gate, and a second transistor of a second type integrally formed with the SCR including a second gate; and a control circuit **in response to a first voltage applied to the first and second gates** providing **a first holding voltage** to the SCR **to keep the SCR from latching-up**, and **in response to a second voltage applied to the first and second gates** providing **a second holding voltage** to the SCR **to keep the SCR in the latch-up state**.

Applicants respectfully submit that there is no teaching or suggestion in Lee sufficient to **prospectively** cause one of ordinary skill in the art to: 1) read Lee, and understand its objectives, structures and operations; 2) spontaneously assume that Lee teachings were somehow insufficient or defective; 3) spontaneously disregard Lee's apparent teaching of the desirability of avoiding latch-up; 4) spontaneously assume that Lee's simple (Vin) input needed to be replaced by a much more sophisticated control circuit; 5) seek out and find Lai; 6) read and understand all of the teachings within Lai; 7) selectively cull from Lai only resistor 244 and capacitor 250, disregarding all remaining structure and operation from Lai; and 8) successfully modify the structure and operation of Lee to incorporate the capacitor and resistor selectively culled from Lai.

Even if one of ordinary skill would be prospectively prompted to embark upon such a selective and improbable endeavor, there is still no indication that the resulting combination would successfully result in all of the required elements of claim 1. Specifically, Applicants respectfully submit that neither Lee or Lai teach or suggest "a control circuit *in response to a first voltage applied to the first and second gates* providing a first holding voltage to the SCR to keep the SCR from latching-up, *and in response to a second voltage applied to the first and*

second gates providing a second holding voltage to the SCR to keep the SCR in the latch-up state."

Applicants respectfully submit that the "control circuits" suggested by the Examiner in Lee and Lai provide voltages to first and second transistor gates, and do not operate responsive to voltages applied to first and second transistor gates; and that – in reference to Lee – the Examiner had conceded this point.

Applicants respectfully submit that claim 1 overcomes the suggested combination of Lee and Lai, and therefore submit that claim 1 stands allowable.

Applicants respectfully request reconsideration and allowance of claim 1.

Claims 2-7:

Applicants respectfully traverse the Examiner's rejections of claims 2-7.

Claims 2-7 depend from allowable claim 1, and provide further limitations distinguishing over the cited art.

Claims 2-7 stand allowable.

Applicants respectfully request reconsideration and allowance of claims 2-7.

Claims 8-15:

Claims 8-15 have been canceled.

Claim 16:

Applicants respectfully point out that claim 16 an integrated circuit for electrostatic discharge (ESD) protection comprising: a first voltage line of a first voltage level; a second voltage line of a second voltage level; a plurality of contact pads; a plurality of silicon-controlled rectifiers (SCR), each of the SCRs including a p-type transistor and an n-type transistor

integrally formed with the SCR; and **a control circuit providing a first holding voltage through the p-type and n-type transistors to the SCRs to keep the SCRs from latching-up, and providing a second holding voltage through the p-type and n-type transistors to the SCRs to keep the SCRs in the latch-up state** during an ESD event that an ESD pulse appears on the first voltage line or one of the contact pads.

The Examiner suggests that Lee discloses an integrated circuit comprising an silicon controlled rectifier (SCR); a first transistor of a first type (P-channel FET) integrally formed with the SCR including a first gate; a second transistor of a second type (N-channel FET) integrally formed with the SCR including a second gate; and a control circuit (Vin) which provides a first and second voltage to the first and second gates.

Applicants respectfully traverse the Examiner's characterization of the teachings of Lee.

The Examiner has admitted that Lee does not teach a control circuit providing "a first holding voltage to the SCR to keep the SCR from latching up, and in response to a second voltage applied to the first and second gates providing a second holding voltage to the SCR to keep the SCR in latch up state." The Examiner further admits that Lee "does not teach a control circuit providing a first holding voltage through the p-type and n-type transistors to the SCR to keep the SCR from latching up, and providing a second holding voltage through the p-type and n-type transistors to the SCRs to keep the SCRs in the latch-up state ."

Applicants agree.

Applicants further respectfully point out Lee appears to be directed to an invention that is intended to **AVOID** latch-up. (Col. 2, lines 44-46). Thus one of ordinary skill, upon finding

Lee, would be taught away from keeping a semiconductor device in latch-up. **Lee's invention is, in fact, entitled "Latch-Up Resistant CMOS Structure."**

The Examiner then admits that "Lee does not teach providing a plurality of contact pads or that there is a plurality of SCRs."

The Examiner then goes on to suggest, similar to the rejection of claim 1, that Lai discloses some of the structural and operational elements lacking in Lee, and a highly speculative and selective combination of Lee and Lai to remedy such deficiencies.

Applicants respectfully incorporate by reference the arguments made in relation to claim 1, herein. Applicants respectfully submit that there is no teaching or suggestion found in Lee sufficient to prompt such a highly speculative and selective combination of Lee and Lai. Lee, in fact, appears to teach away from operation required by claim 16. Even assuming such motivation was found, the resulting combination would still not satisfy all the required elements of claim 16.

In an attempt to overcome this deficiency, the Examiner suggests further speculative and selective combination of a few elements, selectively culled from Tong, with the already improbable and incomplete combination of Lee and Lai.

Applicants find that Tong teaches its own ESD protection structures and operations. Applicants respectfully submit that, in order to arrive at the combination suggested by the Examiner, one of ordinary skill in the art would prospectively have to: 1) read Lee, and understand its objectives, structures and operations; 2) spontaneously assume that Lee teachings were somehow insufficient or defective; 3) spontaneously disregard Lee's apparent teaching of the desirability of avoiding latch-up; 4) spontaneously assume that Lee's simple (Vin) input

needed to be replaced by a much more sophisticated control circuit; 5) seek out and find Lai; 6) read and understand all of the teachings within Lai; 7) selectively cull from Lai only resistor 244 and capacitor 250, disregarding all remaining structure and operation from Lai; 8) successfully modify the structure and operation of Lee to incorporate the capacitor and resistor selectively culled from Lai; 9) spontaneously assume that the resulting combination needed to be further modified to incorporate a plurality of I/O pads and voltage lines; 10) seek out and find the Tong reference; 11) read and understand all of Tong's teachings and suggestions; 12) selectively cull from Tong only its teaching of a few selective elements, disregarding the remainder of Tong's substantial structures and operations; and 13) successfully modify the already incomplete combination of Lee and Lai to further incorporate the few elements culled from Tong.

Even if one of ordinary skill would be prospectively prompted to embark upon such a selective and improbable endeavor, there is still no indication that the resulting combination would successfully result in all of the required elements of claim 16.

Applicants respectfully submit that claim 16 overcomes the suggested combination of Lee, Lai and Tong, and therefore submit that claim 16 stands allowable.

Applicants respectfully request reconsideration and allowance of claim 16.

Claims 17-22:

Applicants respectfully traverse the Examiner's rejections of claims 17-22.

Claims 17-22 depend from allowable claim 16, and provide further limitations distinguishing over the cited art.

Claims 17-22 stand allowable.

Applicants respectfully request reconsideration and allowance of claims 17-22.

Claim 23:

The Examiner rejects claim 23 on substantially the same grounds as claim 1. Applicants therefore incorporate herein all of the remarks above in relation to claim 1.

Applicants respectfully submit that claim 23 overcomes the § 103 rejection. Applicants believe that claim 23 stands allowable over the cited references.

Applicants respectfully request reconsideration and allowance of claim 23.

Claims 24-27:

Claims 24-27 depend from allowable claim 23, and provide further limitations distinguishing over the cited references.

Applicants respectfully submit that claims 24-27 overcome the § 103 rejections. Applicants respectfully request reconsideration and allowance of claims 24-27.

Claim 28:

The Examiner rejects claim 28 on substantially the same grounds as claim 16. Applicants therefore incorporate herein all of the remarks above in relation to claim 16.

Applicants respectfully submit that claim 28 overcomes the § 103 rejection. Applicants believe that claim 28 stands allowable over the cited references.

Applicants respectfully request reconsideration and allowance of claim 28.

Claims 29-32:

Claims 29-32 depend from allowable claim 28, and provide further limitations distinguishing over the cited references.

Applicants respectfully submit that claims 29-32 overcome the § 103 rejections. Applicants respectfully request reconsideration and allowance of claims 29-32.

Conclusion

Applicant respectfully submits that – in light of this response addressing the Examiner's rejections – the instant application, including claims 1-7 and 16-32, is in condition for allowance.

Applicants respectfully request reconsideration and withdrawal of the rejections, and allowance of all pending claims.

Respectfully submitted,

December 12, 2006 (Date)

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